

Trans. Entom. Soc., April 1884, August 1885, and June 1886; Proc. Roy. Soc., No. 237, 1885, and No. 243, 1886; "The Experimental Proof of the Protective Value of Colour and Markings in Insects in reference to their Vertebrate Enemies" (Proc. Zool. Soc., 1887); "An Inquiry into the Cause and Extent of a special colour-relation between certain exposed Lepidopterous Pupæ and the surfaces which immediately surround them" (Phil. Trans., 1887); "Notes in 1886 on Lepidopterous Larvæ" (Trans. Entom. Soc., 1887).

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F.R.A.S. Postmaster-General, Superintendent of Telegraphs, and Government Astronomer. He has executed important astronomical observations extending over thirty-eight years, including Transit of Venus, Jupiter's Satellites, Determination of Australian Longitudes, &c. He has conducted Meteorological Observations in South Australia extending over thirty years. He has written a Treatise on the Meteorology of South Australia, and other works. He has contributed papers to the Royal Society of South Australia, and was responsible for the erection of the telegraph line across the interior of Australia from Adelaide to Port Darwin, 2000 miles in length, and to Western Australia, 1000 miles in length.

HERBERT TOMLINSON, B.A. (Oxford),

Formerly Junior Student of Christ Church, Oxford. Whitworth Exhibitioner, 1870. Demonstrator of Natural Philosophy in King's College, London. Author of numerous papers on physical subjects published in the Phil. Trans., Proc. Roy. Soc., *Phil. Mag.*, &c., the most important of which relate to the influence of stress and strain on the Physical Properties of Matter. The following may be enumerated:—(1) "Effect of Magnetization on the Electrical Conductivity of Iron" (Proc. Roy. Soc., 1875); (2) "Increase in Resistance to the passage of an Electrical Current produced in certain wires by Stretching" (*ibid.*, 1877); (3) "Alteration of Thermal Conductivity of Iron and Steel caused by Magnetism" (*ibid.*, 1878). The following papers relate to the influence of Stress and Strain, &c.:—(4) "Moduli of Elasticity" (Phil. Trans., 1883); (5) "Electrical Conductivity" (*ibid.*); (6) "Relations between Moduli of Elasticity, Thermal Capacity, and other Physical Constants" (Proc. Roy. Soc., 1885); (7) "Alteration of the Electrical Conductivity of Cobalt, &c., by Longitudinal Traction" (Proc. Roy. Soc., 1885); (8) "Internal Friction of Metals" (Phil. Trans., 1886); (9) "Co-efficient of Viscosity of Air" (*ibid.*); (10) "On Certain Sources of Error in Connection with Experiments on Torsional Vibrations" (*Phil. Mag.*, 1885); (11) "Temporary and Permanent Effects on some of the Physical Properties of Iron produced by raising the Temperature to 100° C." (*ibid.*, 1886); (12) "Effect of Change of Temperature on the Internal Friction and Torsional Elasticity of Metals" (abstr. in Proc. Roy. Soc., 1886); (13) "Effect on Magnetization on the Elasticity and the Internal Friction of Metals" (Phil. Trans., vol. clxxix. p. 1); and other papers.

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Composition of Human Bile" (with Mr. Herroun) (Journ. of Physiol., 1884); "On the Cause of the First Sound of the Heart" (with Dr. Barrett) (*ibid.*, 1884). On Pathological Subjects:—"Diseases of the Kidney" (Dubl. Path. Soc., 1865); "Lymph Glands" (*Med. Jahrb. d. Aertze*, in Wien, 1871); "Pleurpneumonia in Cattle" (Report for Roy. Agric. Soc., 1878); and of numerous other papers (Proc. Dubl. Path. Soc.; *Irish Hospital Gazette*; *Dubl. Journ. Med. Sci.*, 1872 to 1875). Author of "Manual of Physiology."

THE SHOOTING-STARS OF APRIL.

IN recent years this meteor group has not developed exceptional activity, nor have its annual returns attracted such general observation as the *Perseids* of August; but it is nevertheless a stream that is entitled to a considerable amount of interest, as some of its displays appear to have been noticed in ancient times, and it is identified with the comet described by Thatcher on April 4, 1861. The modern displays of this shower have not justified the anticipations formed of it in regard to its richness because of its periodic character. Of late years the special region of the orbit where the meteorites are clustered in the richest profusion has probably been far removed from the earth. The apparent feebleness of the shower may therefore be regarded as merely temporary. The *Leonids* of November have during the last fifteen years similarly offered a poor spectacle to those who have encouraged the hope that they might attain a prominent degree of activity. But with the parent comet (I. 1866), in distant parts of its path, it is not surprising that comparatively very few of these meteors have been seen. The same remark equally applies to the April meteors. They are chiefly condensed near the comet of 1861, which is now traversing a section of its orbit sufficiently remote from the earth to have withdrawn all the richer parts of the stream from our cognizance. The meteorites lately encountered by the earth upon crossing the node of this comet on about April 20 are simply the outlying and more scattered remnants of the system. It is highly probable, however, that the distribution of the particles is to some extent irregular, and that in certain years the shower attains a more pronounced aspect than the conditions would indicate. Thus in 1884 there was a rather conspicuous display, the number of meteors visible being about 22 per hour for one observer; but this, though representing a striking degree of productiveness relatively to the minor showers, yet falls much below the character of a meteor-stream of first-class importance.

In the present year, the Lyrid showers, if visible, will be most favourably witnessed in the early part of the night, as moonlight will interfere in the morning hours. On April 19 the moon rises at 11h. 53m., on the 20th at 13h., and on the 21st at 13h. 55m. The north-eastern sky should be watched before our satellite emerges from the horizon. The most essential features to be noticed during the progress of the display will be the following:—

(1) The position of the radiant-point on each night of observation. It is very important to note whether this point becomes rapidly displaced to the eastwards, as in 1885 (NATURE, vol. xxxii. p. 5).

(2) The horary number of meteors appearing to one observer, and the proportion radiating from Lyra.

(3) The paths and visible peculiarities of the largest meteors. It is necessary that such data be gathered and utilized in computations of the real paths of those meteors which may be recorded at more than one station.

(4) The duration of the individual meteor-flights. This is an element extremely difficult to estimate with tolerable precision, especially in respect of swift-moving meteors like the Lyrids.

(5) The positions of radiants of the minor streams which furnish meteors at this epoch. Subjoined are the

places of some of the principal of these, which have been ascertained during the last fifteen years:—

No.	R.A.	Decl.	No.	R.A.	Decl.
1 ...	213 ...	+ 53	5 ...	286 ...	+ 24
2 ...	227 ...	- 1	6 ...	293 ...	+ 43
3 ...	231 ...	+ 17	7 ...	296 ...	± 0
4 ...	272 ...	+ 21	8 ...	302 ...	+ 23

The centre of emanation of the Lyrids is at $270^{\circ} + 32\frac{1}{2}^{\circ}$, which lies between the constellations of Hercules and Lyra. It will be very interesting to secure additional observations this year as to the strength and character of this stream, and of the many lesser contemporary displays which manifest themselves at this period. Fortunately the weather is often propitious in the vernal season, and enables researches of this nature to be successfully prosecuted.

W. F. DENNING.

NOTES.

OUR readers may remember that, last autumn, *apropos* of a great patent case of colossal dimensions which was then before the Courts, we published an article urging that, in the interests of speedy justice, no less than for the dignity of science and its professors, it was most desirable that advantage should be taken of the provisions which already exist in our law, and especially in the Judicature Act of 1873 and its amending statutes, and in the rules of the Supreme Court framed under them, for the employment of scientific assessors or experts to aid the judge in strictly scientific cases. It may be remembered that, even in the very case on which we then commented, the tardy employment of Prof. Stokes to aid Mr. Justice Kay was productive of most satisfactory results. We are glad, therefore, to notice that, in a case of some difficulty which came before Lord Coleridge last week, the same eminent man was again called in, and again with the result of relieving the Court from the task of hearing a mass of expert evidence with which no judge and jury are competent to deal satisfactorily. The whole question at issue was whether a certain anemometer, of which one of the parties was patentee and the other the purchaser, came up to the description of its qualities given by the vendor. A considerable array of counsel appeared on both sides, and it was arranged that the services of Prof. Stokes should be called in to the aid of the Court. Seven of the anemometers were submitted to him, and, after an investigation by him, his report was read, and upon it judgment was given. The result is, that the report of the case occupies less than a third of a column of the *Times*. Without the services of Prof. Stokes, or some similar sworn expert, we should have had half-a-dozen or more expert witnesses on one side contradicted by half-a-dozen expert witnesses on the other side; a case which would have lasted three or four days before a wearied judge, conscientiously striving to understand purely technical details, and a perplexed and confused jury; great loss to both parties; an unsatisfactory result; and, as we think, no little scandal to science and scientific men. All this has been prevented by the very simple expedient of calling in an eminent man of science to make a sworn report on the purely technical details, and leaving the rest to the ordinary administration of our Courts. Herein, we are persuaded, lie the proper functions of scientific men in the administration of public justice.

Two years ago the Dutch Congress of Science and Medicine was founded, and it was decided that it should meet every two years. The first meeting was held at Amsterdam in September 1887. The second meeting will take place at Leyden from the 25th to the 27th of April. The President of the Congress is Prof. Suringar (Leyden), who will deliver the opening address. A large attendance is expected.

THE meetings of the Institution of Naval Architects, last week, were in every way most successful, and the Institution is to be congratulated on the importance and the wide range of the subjects discussed. At the first meeting, on Wednesday, April 11, a remarkable paper on the designs for the new first-class battle-ships was read by Mr. W. H. White, the Director of Naval Construction. The principal object of this paper was to describe the main features of the approved designs for these battle-ships, and to contrast their protection, armament, speed, and coal-endurance with the corresponding features in other battle-ships designed during the last twenty years. Incidentally, Mr. White sought to show that there are good reasons why these ships surpass in size any previously constructed vessels of the Royal Navy. The reading of the paper was followed by a discussion, in which Sir E. J. Reed, Lord Charles Beresford, and others took part. On Thursday, Sir N. Barnaby, late Director of Naval Construction, read a paper on the protection of buoyancy and stability in ships. The next paper was by Captain Penrose Fitzgerald, on the protection of merchant steamers in time of war. The cruiser, *Piemonte*, built for the Italian Government, at Elswick, was described by Mr. P. Watts, of Elswick, her designer; and Mr. J. I. Thornycroft read a paper on water-tube boilers for war-ships. On Thursday evening, technical papers were read by Mr. John Scott, Mr. J. Macfarlane Gray, and Mr. V. B. Lewes. On Friday, the first paper read was by Mr. Beauchamp Tower, describing an apparatus for providing a steady platform for quick-firing or machine-guns, or a telescope, or a search-light, on board ships at sea. The second paper was by Prof. V. B. Lewes, on the corrosion and fouling of steel and iron ships. Two papers by Mr. R. E. Froude followed, one on the part played in the operations of propulsion by differences in fluid pressure, and the other on Prof. Greenhill's theory of the screw propeller. Technical papers were likewise read by Mr. W. Rundell and Mr. A. F. Hill.

THE general meeting of the Institution of Mechanical Engineers will be held on Wednesday evening, May 1, Thursday evening, May 2, and Friday afternoon, May 3, at 25 Great George Street, Westminster, by permission of the Council of the Institution of Civil Engineers. The chair will be taken by the President, Mr. Charles Cochrane, at half-past seven p.m., on Wednesday and Thursday evenings, and at half-past two p.m. on Friday afternoon. He will deliver his inaugural address on Wednesday evening. The following papers will be read and discussed as far as time permits:—"Research Committee on Marine-Engine Trials: Report upon Trials of the s.s. *Meteor*," by Prof. Alexander B. W. Kennedy, F.R.S., Chairman; and "Description of an Apparatus for Drying in Vacuum," by Mr. Emil Passburg, of Breslau (Friday afternoon). The anniversary dinner will take place on Friday evening, May 3.

THE public funeral of M. Chevreul, which took place in Paris, on Saturday last, was one of great splendour. This was due in part, no doubt, to the interest excited by M. Chevreul's extraordinary age; but it must also be taken as a striking indication of the respect felt in France for men who achieve eminence in science. In front of the house in which M. Chevreul died, beside the Jardin des Plantes, a tent was fitted up as a chapel; and here the body was placed in state. The procession to the Cathedral of Notre Dame was headed by a detachment of police, who were followed by a platoon of cuirassiers, the 103rd Infantry Regiment, with flags, and a band of ushers, carrying wreaths presented by the Stearine-makers of France, the Stearine-makers of Lyons, the Friendly Society of Natives of Anjou, living in Paris, and a large number of other public and private bodies. Last of all came a wreath sent by the Gobelin Works, surrounded by a woollen fringe dyed by M. Chevreul himself. The pall-bearers were MM. Fallières,